Operating Systems (SOFE 3950U)

Tutorial 10: MPI

Contributors
Kavinaa Uthayachandran (100566729)
Angelie Kennedy (100506702)
Anjali Shah (100555990)

Conceptual Questions

1. An MPI is a way of exchanging messages between multiple computers running a parallel program across distributed memory. The benefits are portability, efficiency and flexibility.

2. MP programs run on the same code on multiple processors, which then communicates with another via library calls. MPI implementation is network aware so it will select the network interface automatically.

3. The 4 MPI data types are;
   -MPI_CHAR
   -MPI_INT
   -MPI_FLOAT
   -MPI_DOUBLE

4. **MPI_Bcast**; used to broadcast, which is when one process sends the same data to all processes in a communicator. The function takes in a count, data type of buffer, rank of broadcast root and communicator as input parameters. The function outputs the starting address of the buffer.

5. **MPI_Send**; used to perform a blocking send. It takes in the initial address of the send buffer, a count for the number of elements in the send buffer, a data type of each send buffer element, *dest* for the rank of destination, a message tag and a communicator.
   MPI_Recv; is used for blocking receive for a message. It takes in a counter, data type, source, tag and communicator as input parameters and outputs the initial address of receive buffer and status object.

Github with source code files

git@github.com:kuthayachandran/Tutorial10.git